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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,573	12/20/2001	Naofumi Yoneda	1163-0381P	5009

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EXAMINER
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GLENN, KIMBERLY E

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/018,573

Applicant(s)

YONEDA ET AL.

Examiner

Kimberly E Glenn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 1/2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the branch plane" in line 25. There is insufficient antecedent basis for this limitation in the claim.

With regards to claims 12 and 13, applicants' state that the waveguide band pass filter is "replaced with" a waveguide low pass (or high pass) filter. In the independent claims applicants recite a waveguide band pass filter and therefore band pass filter must be consistent through out the remaining claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alford et al US Patent 4,912,436 in view of Junker et al US Patent 6,313,714.

The primary reference, Alford et al disclose an orthogonal mode transition 26 and a second transition 42 (a branch waveguide polarizer/branch filter); a first low pass filter 30 (first band pass filter) connected to one end of said orthogonal mode transition wherein the low pass filter can be considered a band pass filter having a range from zero to an upper limit; a second square waveguide 57 (a rectangular waveguide multistage transformer) connected to one end of second transition 42; a second side junction 43 (a rectangular waveguide H -plane T-branch circuit) connected to said second square waveguide, a third low pass filter 44 (a second waveguide band pass filter) connected to said second side junction 43; and a fourth low pass filter 48 (a third waveguide band-pass filter) connected to said second side junction 43. In operation, the system functions to concurrently transfer four different signal bands in the appropriate directions between the ports 16-19 and the common port 12 leading to the antenna feed 14. The vertically polarized signal band that is to be transmitted is applied to the first port 16, from which it is propagated via the first high frequency waveguide section 52, the corner section 54 and the junction 56 into the third orthogonal mode junction 58. From this junction 58 it cannot be propagated in the second high frequency waveguide section 60 due to the orthogonal orientation of that element, and it transfers along the second square waveguide 42, past the second transition 42 and second junction 43, and through the first orthogonal mode transition 26

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to the common square waveguide 24 and thence to the output at the common port 12. The vertically polarized high frequency transmit band is rejected at both the third low pass filter 44 presented at the second junction 43, and the first low pass filter 30 presented at the first side wall junction 28. Each of the successive square and rectangular waveguide sections propagates the vertically polarized transmit band without substantial spurious modes until the common port 12 is reached. The orthogonal mode transition and second transition are formed by a square waveguide and two coupling holes formed through one side wall of the square waveguide at the branching end. The first and third low pass filters are formed by a corrugated rectangular waveguide. (Figures 1 and 2 and corresponding description)

The limitation regard the first, second and third waveguide filters being formed by boring two metal block form their surface will not be given at patentable weight. Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. [See MPEP 2113]

Thus, Alford et al is shown to teach all the limitations of the claim with the exception of a circular-to-square waveguide multistage transformer connected to an input port.

Junker et al teaches that it is well known and desirable in the art to provide a circular to square waveguide transformer to an input port. Junker et al also teaches that square symmetric orthomode coupler can operate over a wider frequency then can a circular symmetric circular waveguide. (Column 1 line 32 through column 3 line 41 and figure 2)

It would have been obvious to one of ordinary skill in the art at that time of the invention to provide the common port of Alford et al with a circular to square waveguide

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transformer (coupler) as taught in Junker et al at instances where the inputs is transmitted by a circular waveguide. The motivation / suggestion for this modification would be to provide a transition means between the square common port of Alford et al and a circular input waveguide.

***Allowable Subject Matter***

Claims 2,4-11 and 14-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: With regards to claims 2 and 4 the prior art does not disclose or fairly teach the polarizer/ branching filter comprising of a single coupling hole formed through oneside wall of the square waveguide at the branching end of said branch. With regards to claim5, the prior art does not disclose or fairly teach the polarizer/ branching filter comprising of two coupling holes formed through one sidewall of the square waveguide at the branching end of said branch waveguide polarizer/branching filter and a thin metal sheet inserted in said square waveguide. With regards to claim 7, the prior art does not disclose or fairly teach the circularly polarized wave generator comprising of a plurality of metal pins mounted on the side wall of the circular waveguide. With regards to claim 8, the prior art does not disclose or fairly teach the circularly polarized wave generator a plurality of grooves cut in the side wall of the circular waveguide. With regards to claim 9, the prior art does not disclose or fairly teach the first waveguide band pass filter having n resonators and n iris-type coupling holes; the second waveguide band pass filter is formed by m rectangular cavity resonators

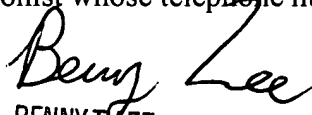
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and  $m+1$  iris-type coupling holes; and that third waveguide band-pass filter is formed by  $n$  rectangular cavity resonators and  $n+1$  iris-type coupling holes. With regards to claims 10 and 11, the prior art does not disclose or fairly teach the second waveguide band-pass filter is formed by  $m$  rectangular cavity resonators and  $2m+2$  ( $3m+3$ ) post-type coupling holes; or the third waveguide band pass filter is formed by  $n$  rectangular cavity resonators and  $2n+2$  ( $3n+3$ ) post-type coupling holes. With regards to claims 14-16, the prior art does not disclose or fairly teach a rectangular waveguide E-plane T-branch circuit connected to the branching end of the branch waveguide polarizer/branching filter and the first waveguide band-pass filter; and a fourth waveguide band-pass filter connected to the rectangular waveguide E -plane T-branch circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (703) 306-5942. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
BENNY T. LEE  
PRIMARY EXAMINER  
ART UNIT 2817

Kimberly E Glenn  
Examiner  
Art Unit 2817